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Microwave quantum memory on a controlled frequency comb

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Abstract

© 2018 Kvantovaya Elektronika and Turpion Ltd. We consider a protocol of broadband quantum memory on a controlled frequency comb of spectral lines of ring microwave resonators connected to a common strip waveguide. A prototype of this memory is manufactured, on which the room-temperature preservation of microwave pulses with an efficiency of about 3 % is demonstrated. The experimentally obtained efficiency can be enhanced to a level above 90 % using modern microwave technologies and conducting experiments at helium temperatures, which opens a new way for the development of integrated microwave quantum memory.

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Keywords

Controlled frequency comb, Microwave quantum memory, Quantum efficiency, Quantum informatics, Ring resonator

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